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PATENT

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PATENT EXAMINING OPERATION



Applicant(s): James Edward MACDOUGALL et al.

Serial No: 10/046,434 Group Art Unit: 1775

Filed: January 14, 2002 Examiner: Stephen J. Stein

Att. Docket No.: 05977PD USA Confirmation No.: 3447

For: MESOPOROUS FILMS HAVING REDUCED DIELECTRIC CONSTANTS

## REQUEST FOR RECONSIDERATION OF FINAL REJECTION

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Sir:

In response to the October 23, 2003 Final Rejection, favorable reconsideration is respectfully requested in view of the following remarks.

Claims 18-24, 27-33 and 36-37 stand rejected under 35 U.S.C. § 102(b), as allegedly being anticipated by U.S. Patent No. 5,858,457 to Brinker et al. Claims 18-24, 27-33 and 36-37 stand rejected under 35 U.S.C. § 102(b), as allegedly being anticipated by U.S. Patent No. 5,645,891 to Liu et al. These rejections are respectfully traversed.

Base claims 18 and 27 are directed to a ceramic film having a dielectric constant below 2.3, and a metal content of less than 500 ppm. The Final Rejection asserts that these claimed properties would be inherent features of the films of Brinker et al. and the films of Liu et al. because the processes of Brinker et al. and Liu et al. are identical to the claimed process. The Final Rejection at paragraph 5 suggests that these purported *prima facie* showings of inherent anticipation may be overcome by evidence (as opposed to "attorney argument") showing that the films of Brinker et al. and Liu et al. do not necessarily possess the claimed properties of the claimed films.

Accordingly, Applicants attach a Rule 132 Declaration of James E. MacDougall, Ph.D. Dr. MacDougall describes experiments showing that the films prepared using the surfactant of the film forming compositions of Brinker et al. and Liu et al. would not necessarily possess the claimed properties of the claimed films. In particular, films prepared using cetyltrimethylammonium salt surfactants taught by the applied references (see the Examples of Brinker et al., which all employ CTAB and Liu et al., which all employ CTAC) would have contained about 1000 ppm or more alkali metal, well in excess of the 500 ppm metal content limitation in base claims 18 and 27.

Thus, the films of Brinker et al. and Liu et al. do not necessarily possess the claimed properties of the claimed films, and the inherent anticipation rejections must be withdrawn. See, e.g., MPEP § 2112 ("To establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill.").

Accordingly, reconsideration and withdrawal of the anticipation rejections of claims 18-24, 27-33 and 36-37 are respectfully requested.

Claims 25-26 and 34-35 stand rejected under 35 U.S.C. § 103(a), as allegedly being unpatentable over Liu et al. This rejection is respectfully traversed.

Claims 25-26 and 34-35 patentably distinguish over Liu et al. for at least the same reasons as base claims 18 and 27 (noted above), from which claims 25-26 and 34-35 depend.

As explained by Dr. MacDougall in his Rule 132 Declaration, although Liu et al. teaches the desirability of removing halide from a film, it does not disclose or suggest removing alkali metal from a film, and moreover teaches away from low metal content films in Examples 1-4 and 8, wherein alkali metal compounds are added as reagents (sodium aluminate) to produce the ceramic films.

Claims 26 and 35 further distinguish over Liu et al. by specifying that the film does not include pores sufficiently ordered in a plane of the substrate such that an X-ray diffraction pattern of said film shows a diffraction peak. Figures 4B, 6C and 8B of Liu et al. show diffraction peaks.

Claims 25 and 34 further distinguish over Liu et al. by specifying that the film includes pores sufficiently ordered in a plane of the substrate that an X-ray diffraction pattern of said film shows a diffraction peak at a d spacing greater than about 44 Å. Figures 4B, 6C and 8B of Liu et al. show diffraction peaks at d spacings less than 44 Å (38.5, 34 and 41 Å, respectively).

As explained by Dr. MacDougall, Liu et al. discloses that its films are prepared by substantially using the method of U.S. Patent No. 5,098,684 to Kresge et al., which method would result in ordered materials that would show Bragg diffraction peaks. This is a desired result of the process, and contrary to the Final Rejection, Dr. MacDougall provides declaratory evidence that one of ordinary skill in the art would have lacked reasonable motivation to alter the process to prepare more disordered materials (i.e., materials lacking Bragg diffraction), particularly in view of the understanding in the art at the time of the present invention that having order improves mechanical properties of films.

Accordingly, reconsideration and withdrawal of the rejection of claims 25-26 and 34-35 as being obvious over Liu are respectfully requested.

For at least the reasons set forth above, it is respectfully submitted that the above-identified application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are respectfully requested.

Should the Examiner believe that anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

Date: 23 Jan 2004

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